

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

ALLOWABLE SUBJECT MATTER

The Examiner's indication of the allowability of the subject matter of claims 4 and 14 is respectfully acknowledged. These claims, however, have not been rewritten in independent form at this time since, as set forth in detail hereinbelow, it is respectfully submitted that their respective parent claims, as amended, now also recite allowable subject matter.

THE CLAIMS

Claim 1 has been amended to more clearly recite the feature of the present invention whereby the fluid jet is squirted such that when a portion of the strip is displaced upward from the pass line beyond a predetermined level, the displaced portion of the strip collides with the fluid jet in order to correct displacement of the displaced portion. In this connection, it is respectfully pointed out that according to the present invention, there is no purposeful or intentional upward displacement of the strip from the pass line (i.e., the strip is not caused to be displaced upward from the pass line), and indeed, during normal and stable operation of the hot runout table, the strip will not

be displaced upward from the pass line. However, when such upward displacement does occur for whatever reason, the upwardly displaced portion collides with the fluid jet which is squirted in accordance with the claimed present invention so that the displacement is corrected (i.e., the upwardly displaced portion is forced back to the pass line).

In addition, claim 1 has also been amended to more clearly recite that the fluid jet is squirted without touching a surface of any portion of the hot rolled strip when the hot rolled strip is running entirely on a pass line, and independent claim 20 has been amended in a similar manner.

Still further, the claims have been amended to correct some minor antecedent basis problems and/or to make some minor grammatical improvements.

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered.

THE PRIOR ART REJECTION

Claims 1, 5-8, 10 and 15 were rejected under 35 USC 103 as being obvious over JP 2001-340911 ("Yamamura et al") in view of USP 6,295,852 ("Kipping et al"); claims 2, 3, 9, 11-13, 16 and 20-30 were rejected under 35 USC 103 as being obvious over Yamamura et al in view of Kipping et al and further in view of

USP 6,733,720 ("Fujibayashi et al"); and claims 17-19, 31 and 32 were rejected under 35 USC 103 as being obvious over Yamamura et al, Kipping et al and further in view of USP 4,497,180 ("Graham"). These rejections, however, are respectfully traversed with respect to the claims as amended hereinabove.

The present invention as recited in amended independent claim 1 is directed to a hot rolled strip production method wherein a hot rolled strip is conveyed by a hot runout table, and a fluid jet is squirted above the hot rolled strip conveyed by the hot runout table so as to pass over the hot rolled strip without touching a surface of any portion of the hot rolled strip when the hot rolled strip is running entirely on a pass line (i.e., a strip-conveying surface of the hot runout table). As recited in amended independent claim 1, when a portion of the strip is displaced upward from the pass line beyond a predetermined level, the displaced portion of the strip collides with the fluid jet in order to correct displacement of the displaced portion.

The present invention as recited in amended independent claim 20, moreover, is directed to a hot rolled strip production system including a hot rolling train, a hot runout table provided on an exit side of the hot rolling train to convey a hot rolled strip and a coiler for coiling the hot rolled strip conveyed by the hot runout table. As recited in amended independent claim 20,

a fluid-squirting nozzle is provided adjacent to or above the hot runout table to squirt a fluid jet above the hot rolled strip conveyed by the hot runout table so that the fluid jet passes over the hot rolled strip without touching a surface of any portion of the hot rolled strip when the hot rolled strip is running entirely on a pass line (i.e., a strip-conveying surface of the hot runout table).

According to the claimed present invention, since the fluid jet is squirted to pass over the hot rolled strip without touching a surface of any portion of the hot rolled strip when the hot rolled strip is running entirely on the pass line during normal and stable operation of the hot runout table, there will not be any touching or contact between the fluid jet and the surface of any portion of the hot rolled strip. However, when a portion of the strip is displaced upward from the pass line beyond a predetermined level (and thus no longer runs entirely on the pass line), the displaced portion will collide with the fluid jet which thus causes displacement of the displaced portion to be corrected (i.e., forced back to the pass line).

This intentional prevention of touching or contact between the fluid jet and the hot rolled strip when the hot rolled strip is running entirely on the pass line provides significant advantages. In this connection, it is noted that when fluid squirted above a hot rolled strip running entirely on the pass

line does come into contact with the hot rolled strip, an impact force in a vertical direction is generated which causes vertical displacement of the strip (looping and waving at the head ends) in the upward direction relative to the pass line (as explained in the specification in the paragraph bridging pages 7 and 8). As a result, in this case, the squirting of the fluid jet causes defects in the rolling of the hot rolled strip. With the structure of the claimed present invention, however, such defects are avoided because the fluid jet does not touch a surface of any portion of the hot rolled strip when the hot rolled strip is running in a stable condition entirely on the pass line. Thus, with the structure of the claimed present invention, the hot rolled strip is able to continue in its stable run entirely on the pass line without vertical displacement of the hot rolled strip or other defects arising from the impact of drops of fluid on the surface of the hot rolled strip. Nevertheless, with the structure of the claimed present invention, when the hot rolled strip is displaced and does not run entirely on the pass line, the displaced portion collides with the squirted fluid jet and displacement of the displaced portion is corrected to thereby return the hot rolled strip to the pass line and its stable running condition.

It is respectfully submitted that the cited prior art references do not disclose, teach or suggest the above described

features and advantageous effects of the hot rolled strip production method and system of the present invention as recited in amended independent claims 1 and 20.

Yamamura et al discloses a hot rolled strip production method and system wherein nozzles 5 direct fluid jets above a hot rolled strip 13 (see Fig. 1a). It is respectfully submitted, however, that Yamamura et al does not disclose, teach or suggest that the fluid jets are squirted from the nozzles 5 so that the fluid jets passing over the hot rolled strip 13 do not touch the surface of any portion of the hot rolled strip 13 when the hot rolled strip 13 is running entirely on a pass line, as according to the present invention as recited in amended independent claims 1 and 20. And it is respectfully pointed out that Yamamura et al is discussed in the Background Art portion of the present application at pages 6-11 (Document 3).

It is respectfully submitted, moreover, that Kipping et al, Fujibayashi et al and Graham also do not disclose, teach or suggest squirting fluid jets above a hot rolled strip such that the fluid jets pass over the hot rolled strip and do not touch a surface of any portion of the hot rolled strip when the hot rolled strip is running entirely on the pass line.

Accordingly, it is respectfully submitted that the present invention as recited in independent claims 1 and 20, and all of the claims respectively depending therefrom, clearly patentably

distinguishes over all of the cited references, taken singly or in any combination, under 35 USC 102 as well as under 35 USC 103.

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In view of the foregoing, entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

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